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Halkirk Way, BelAir, MD 21015 (US). **VOGELSTEIN, Bert** [US/US]; 3700 Brenton Way, Baltimore, MD 21208 (US).

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(74) Agents: **KAGAN, Sarah, A. et al.**; Banner & Witcoff, Ltd., 1001 G Street, N.W., Eleventh Floor, Washington, DC 20001-4597 (US).

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(71) Applicant (*for all designated States except US*): **THE JOHNS HOPKINS UNIVERSITY** [US/US]; 111 Market Place, Baltimore, MD 21202 (US).

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(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **ST. CROIX, Brad** [CA/US]; 319 Lord Byron Lane #202, Cockeysville, MD 21020 (US). **KINZLER, Kenneth, W.** [US/US]; 1403

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(54) Title: **ENDOTHELIAL CELL EXPRESSION PATTERNS**

(57) Abstract: To gain a better understanding of tumor angiogenesis, new techniques for isolating endothelial cells (ECs) and evaluating gene expression patterns were developed. When transcripts from ECs derived from normal and malignant colorectal tissues were compared with transcripts from non-endothelial cells, over 170 genes predominantly expressed in the endothelium were identified. Comparison between normal- and tumor-derived endothelium revealed 79 differentially expressed genes, including 46 that were specifically elevated in tumor-associated endothelium. Experiments with representative genes from this group demonstrated that most were similarly expressed in the endothelium of primary lung, breast, brain, and pancreatic cancers as well as in metastatic lesions of the liver. These results demonstrate that neoplastic and normal endothelium in humans are distinct at the molecular level, and have significant implications for the development of anti-angiogenic therapies in the future.